WHAT IS CLAIMED IS:

1. A matrix comprising solid space and interstitial space wherein said interstitial space further comprises an interstitial polymer network.

2. The matrix of claim 1 wherein said solid space comprises solid particles.

3. The matrix of claim 2 wherein said interstitial polymer network is attached to one of said solid particles.

4. The matrix of claim 2 wherein said attachment comprises at least one covalent linkage to said solid particle.

5. The matrix of claim 2 wherein said interstitial polymer network spans at least two of said solid particles.

6. The matrix of claim 2 wherein said interstitial polymer network further comprises a tether molecule.

7. The matrix of claim 2 wherein said solid support further comprises a blocking reagent.

8. The matrix of claim 2 wherein said interstitial polymer network comprises a cross-linked polymer.

9. The matrix of claim 2 wherein said interstitial polymer network further comprises a functional group.

10. The matrix of claim 9 wherein said functional group further comprises a member of a binding pair.

11. The matrix of claim 9 wherein said functional group further comprises a first reactive moiety.

12. The matrix of claim 11 wherein said moiety comprises a chemical catalyst, an enzyme or a chemical reagent.

13. A separation device comprising the matrix of claim 1.

14. An apparatus comprising the separation device of claim 13.

15. A method for forming a matrix comprising solid space, interstitial space and an interstitial polymer network comprising

providing a matrix comprising solid space and interstitial space and forming an interstitial polymer network in at least one of said interstitial space.

16. The method of claim 15 wherein the solid space comprises solid particles.

17. The method of claim 15 wherein said forming comprises *in situ* polymerization of polymerizable subunits.

18. The method of claim 17 wherein said forming comprises copolymerization of said polymerizable subunits with a polymerizable cross linking molecule.

19. The method of claim 18 further comprising copolymerizing said polymerizable subunits and said cross-linking molecule in the presence of a polymerizable molecule comprising a functional group.

20. The method of claim 19 further comprising the step of contacting said functional group with a first member of a binding pair to immobilize said first member in said interstitial polymer network.

21. The method of claim 19 further comprising the step of contacting said functional group with a first reactive moiety.

22. The method of claim 21 wherein said reactive moiety is selected from the group consisting of enzymes, chemical catalysts and chemical reagents.

23. A method of separating a second member of a binding pair comprising contacting a sample containing said second member with the matrix of claim 10 under conditions which allow the formation of a binding pair between said first and second members of said binding pair.

24. The method of claim 21 further comprising removing said first member from said matrix.

25. A method of producing a reaction comprising contacting a sample containing a second reactive moiety with the matrix of claim 19 under conditions which allow a reaction between said first and said second reactive moieties.